99C-101

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Forest Service
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File Code: 2520/1560

Date: April 14, 1999

CALFED Bay-Delta Program Office
1416 Ninth Street, Suite 1155
Sacramento, CA 95814

Dear CALFED Program Managers:

We are responding to your 1999 CALFED Request for Proposals. Enclosed, please find 10 copies of our formal proposal to conduct ecosystem restoration work on National Forest and private lands within the Antelope, Battle, Butte, Deer, and Mill Creek Watersheds. This Proposal represents Phase II of a 1997 two-phase CALFED grant project designed to restore ecological processes within the Antelope, Deer, and Mill Creek watersheds, and Phase 1 projects designed to restore ecological processes within Battle and Butte Creek watersheds.

The Forest has been able to assemble a group of resource professionals to accelerate watershed restoration work with the help of the 1997 CALFED grant, and hope that you will be able to continue to help us with this program. The 1999 proposal reflects a collaborative effort among four watershed conservancies, large private landowners, other Federal, State, and local agencies, and numerous individual stakeholders. We believe this proposal represents the priorities of our fellow stakeholders and compliments the work already underway in each of the five watersheds. Combined, we believe that all of the proposed and ongoing restoration activities will make a significant contribution to meeting the overall CALFED objectives and management strategies for the entire Bay-Delta system. We have structured this proposal in such a way that its tasks are severable and yet still capable of delivering incremental desired effects. Hopefully, this will afford you the greatest flexibility in allocations across the entire spectrum of your funding requests.

The Forest has assigned two individuals to coordinate and implement our current CALFED projects and to also represent the Forest on this proposal. Russ Volke and Greg Napper can be reached at the addresses listed below. Should our proposal be funded, my Chief Financial Officer, Elaine Courtright would be the primary contact for fiscal matters. Her address is also listed below. Please telephone Russ Volke or Greg Napper if you have any questions about the enclosed formal proposal.

Jeff Withroe

JEFF WITHROE
Acting Forest Supervisor

ENCLOSURES
10 copies plus one floppy

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I-016799

I. 1999 CALFED ECOSYSTEM RESTORATION PROPOSAL SOLICITATION

Proposal Title: Lassen National Forest Watershed Stewardship Within the Anadromous Watersheds of Antelope, Battle, Butte, Deer, and Mill Creeks.

Applicant Name: USDA, Forest Service, Lassen National Forest

Mailing Address: Supervisors Office, Lassen National Forest
55 S. Sacramento Street, Susanville, CA 96130

Telephone: (530) 257-2151 Fax: (530) 252-6428

Email: Forest Supervisor: fs/r5_lassen@fs.fed.us Ecosystem Manager: jwithroe/r5_lassen@fs.fed.us

Amount of Funding Requested: $3,017,695 for Three years.

Indicate the Topic for which you are applying. (check only one box).

- ☐ Fish Passage/Fish Screens
- ☐ Habitat Restoration
- ☑ Local Watershed Stewardship
- ☐ Water Quality
- ☐ Introduced Species
- ☐ Fish Management/Hatchery
- ☐ Environmental Education

Does the proposal address a specified Focused Action? _X_ yes _____ no

What county or counties is the project located in? Butte, Plumas, Shasta, and Tehama Counties.

Indicate the geographic area of your proposal (check only one box)

- ☐ Sacramento River Mainstem
- ☑ Sacramento Trib: Butte Basin and North Sacramento Valley EMZ's
- ☐ San Joaquin River Mainstem
- ☐ San Joaquin Trib: _____
- ☐ Delta
- ☐ East Side Trib: _____
- ☐ North Bay/South Bay: _____
- ☐ Landscape (entire Bay-Delta watershed)
- ☐ Suisun Marsh and Bay

Indicate the primary species which the proposal addresses (check all that apply):

- ☐ San Joaquin and East-side Delta tributaries fall-run chinook salmon
- ☑ Winter-run chinook salmon
- ☑ Late-fall run chinook salmon
- ☐ Delta smelt
- ☐ Splittail
- ☐ Green sturgeon
- ☐ Migratory birds
- ☐ Other: _____
- ☑ Spring-run chinook salmon
- ☑ Fall-run chinook salmon
- ☐ Longfin smelt
- ☑ Steelhead trout
- ☐ Striped bass
- ☑ All chinook species
- ☐ All anadromous salmonoids

Page1 Specify the ERP strategic objective and targets that the project addresses. Include page numbers from January 1999 version of ERP Volume I and II:

The projects address Target 7 and three Stage 1 Actions under Ecological Processes found on page 267, Target 1 under Riparian and Shaded Riverine Aquatic Habitats found on page 215, and Target 1 under Freshwater Fish Habitat and Essential Fish Habitat on page 216 of the ERP.

Indicate the type of applicant (check only one box)

☐	State agency	☑	Federal Agency
☐	Public/Non-Profit joint venture	☐	Non-profit
☐	Local government/district	☐	Private party
☐	University	☐	Other: _____

Indicate the type of project (check only one box)

☐	Planning	☑	Implementation
☐	Monitoring	☐	Education
☐	Research		

By signing below, the applicant declares the following:

(1) The truthfulness of all representations in their proposal;

(2) The individual signing the form is entitled to submit the application on behalf of the applicant (if applicant is an entity or organization); and

(3) The person submitting the application has read and understood the conflict of interest and confidentiality discussion in the PSP (Section 2.4) and waives any and all rights to privacy and confidentiality of the proposal on behalf of the applicant, to the extent as provided in the Section.

JEFF WITHROE
(Printed Name of Applicant

Jeff Withroe
(Signature of Applicant)

II. Title Page

Lassen National Forest Upper Watershed Stewardship

- Extensive Sediment Reduction Projects
- Comprehensive Road Surveys That Pinpoint Sediment Sources
- Demonstration Road and Campground Restoration Projects
- Interpretive Sites and Educational Programs
- Meadow Condition Assessment Including Demonstration Sites

Applicant: Lassen National Forest: JEFF WITHROW Acting Forest Supervisor

55 South Sacramento Street
Phone: (530) 257-2151
Fax: (530) 252-6428

Type of Organization/Tax Status:
Federal Government/Exempt

Tax Identification Number/Contractor License: Not Applicable

Participants/Collaborators In Implementation of Tasks	Antelope Crk. Task 1	Battle Creek Task 2	Butte Creek Task 3	Deer Creek Task 4	Mill Creek Task 5
Deer Creek Watershed Conservancy	✓	✓	✓	✓	✓
Mill Creek Watershed Conservancy	✓	✓	✓	✓	✓
Butte Creek Watershed Conservancy	✓	✓	✓	✓	✓
Battle Crk. Watershed Conservancy	✓	✓	✓		✓
Big Chico Creek Watershed Alliance	✓	✓	✓	✓	✓
Collins Pine Company				✓	✓
Sierra Pacific Industries	✓	✓	✓	✓	✓
Meadowbrook Conservation Assocs.	✓	✓	✓	✓	✓
Stream Minders	✓	✓	✓	✓	✓
CALTRANS	✓	✓	✓	✓	✓
Plumas County Road Department				✓	
California Dept. of Water Resources	✓	✓	✓	✓	✓
National Marine Fisheries Service	✓	✓	✓	✓	✓
California Dept. of Fish and Game	✓	✓	✓	✓	✓
Battle Creek Meadows Ranch		✓			
Private Landowners	✓	✓	✓	✓	✓
Butte County Board of Supervisors			✓		
Butte County Planning Dept.			✓		
Tehama Cnty Board of Supervisors	✓	✓		✓	✓
Tehama County Planning Dept.	✓	✓		✓	✓
Plumas Cnty Board of Supervisors				✓	
Chester Elementary School				✓	
Chester High School				✓	
California State University - Chico	✓	✓	✓	✓	✓
Lassen Volcanic National Park		✓			
Bureau of Land Management			✓		

III. Executive Summary

Project Location, Size, and Biological/Ecological Objectives:

In 1997, the Lassen National Forest (LNF) received a CALFED grant to plan extensive restoration work, and implement and monitor several demonstration projects within the Deer, Mill, and Antelope Creek watersheds. The grant used findings of the LNF's Watershed Analysis for Antelope, Deer, and Mill Creek watersheds. These watersheds support most of the few remaining wild stocks of anadromous fish in the Sacramento Valley. The analysis found the condition of two key watershed elements, surface erosion and near stream disturbance were significantly different than their historical condition. The analysis further determined that roads were a primary source of the near stream disturbance, and also the primary source of accelerated surface erosion. The grant was used to identify biologically and physically sensitive watersheds where we could greatly reduce sediment delivery through appropriate treatment. We estimate that these treatments would significantly reduce erosion from roads, and also reduce the number of sites with diversion potential (which represent the greatest risk for sediment input) by fifty percent. These actions will provide a significant improvement to watershed condition and resiliency in the upper watershed and afford additional protection to downstream beneficial uses.

The LNF has worked with stakeholders to develop consistent inventory techniques, complimentary implementation of restoration strategies, uniform monitoring protocols, coordinated maintenance planning, and adaptive management strategies. Restoration is a critical component of the strategy for protecting anadromous fish, as set forth in PACFISH, which amended the Forest Land and Resource Management Plan in 1995. The LNF is committed to achieving its watershed restoration program goals and pursues funding avenues to accelerate these cooperative efforts. The LNF currently has a small appropriated budget that addresses only the most urgent watershed restoration projects, and seeks alternative funding sources to expand and expedite this work. CALFED funds, like other grants, supplement (rather than replace) existing LNF funding and initiatives. CALFED funds also serve to improve the Forest's position in competing for internal Forest Service funding.

Tasks are organized groupings of severable activities in the five LNF watersheds that support anadromous fish. Activity A is the implementation of 139 sediment reduction projects in the Deer, Mill and Antelope watersheds. These projects were selected from a list of 254 sites using a rating system developed by a working group of Conservancy representatives, Federal, State, and local agency representatives, private consultants, and interested stakeholders. Five primary criteria were used to prioritize sites: 1. Diversion potential, 2. Subwatersheds with the highest biological or physical sensitivity, 3. Potential to produce the most sediment, 4. Subwatersheds with other ongoing or planned restoration activities, and 5. Greatest chance of being successfully implemented within the planned time frames.

Activity B is a comprehensive road survey to quantify sediment sources in the upper Butte and Battle Creek watersheds. Surveys would assist watershed restoration strategy development akin to those completed for Antelope, Deer, and Mill Creeks. Activity C is demonstration of road and campground restoration projects in the Antelope and Mill Creek watersheds. Activity D is a condition survey and rehab plan for Colby Creek Meadow. The survey has two objectives: 1. Assessment of restoration work necessary to restore meadow function, and 2. Establishment of a sound, standard meadow condition survey protocol for application across the "Lassen Front". All activities are highly visible and will serve as examples to stakeholders who are considering similar efforts on their lands but are uncertain about the benefits and costs of such work.

Activity E is installation of interpretive sites in all five watersheds and establishment of Watershed Stewardship education programs at Chester Elementary and High Schools. The interpretive displays will contain information on watershed stewardship practices, collaborative efforts with the Conservancies and the anadromous fisheries resource. They will be located at rest areas, campgrounds, and demonstration sites. The watershed program would include field trips to demonstration sites, on the ground restoration activities and classroom instruction at the elementary level. At the high school, a period devoted to watershed management would be developed, supplemented by field trips with hands on activities, including restoration and monitoring work.

The primary biological/ecological objectives of our stewardship project meet the ERP objective of ecosystem quality, and are designed to improve riparian and fisheries habitat, restore wetlands and natural stream morphology and promote and maintain important ecological processes and functions. Our proposal also addresses the Strategic Plan goals of recovery of at-risk native species, reversing downward population trends of listed and non-listed and listed native species, and protecting and/or restoring functional habitat types. The project links to our Land and Resource Management Plan (LRMP) as amended by PACFISH, the Clean Water Action Plan, and SWRCB Beneficial Uses. Collectively the activities compliment planned and ongoing restoration activities and management in the watersheds and contribute to CALFED's long term mission to restore ecosystem health and improve water management for beneficial uses of the Bay-Delta system. Tasks are designed to provide long term benefits to the spring and fall-run chinook salmon and steelhead habitat by reducing accelerated sediment production. Anadromous fish habitat within the LNF is generally in good condition. These activities have the potential to improve habitat, but more importantly will provide additional insurance for protection of habitat quality from future disturbances (i.e. wildfire, flood, spills) by improving overall system health and condition. Monitoring conducted during and following implementation will help answer questions regarding design effectiveness for performance and maintenance, and adaptive management options. (See Appendix A Map)

Budget Costs and Third Party Impacts:

Requested CALFED funding for this proposal is $3,017,695. The LNF approved contributions are $869,000, and tentative contributions are $1,050,000. Third party impacts are limited to loss of vehicle access to roads that may be closed or decommissioned. Public scoping and environmental analysis would assess and address concerns associated with closures and/or decommissioning and include options for mitigation of concerns.

Applicant Qualifications:

The LNF employs hydrologists, fisheries biologists, wildlife biologists, foresters, archaeologists, botanists, engineers, fuels specialists, contract specialists, planners, fiscal, and accounting staff who will develop, implement, monitor, and maintain the proposed watershed restoration tasks.

Monitoring and Data Evaluation

The LNF Ecosystem and Engineering staffs are experienced in monitoring and evaluation of similar watershed improvement and fisheries projects. The LNF has worked with CALFED staff and NMFS to develop data collection, evaluation, and monitoring techniques that display hypothesis/questions, parameters, and evaluations in an acceptable format. Data is collected at site, reach, subwatershed and watershed scales, and includes assessment of implementation, effectiveness and trend. Data would compliment existing public and private monitoring efforts underway in the watersheds. Data will be shared with Conservancies and Agencies, and will be reported annually. Our monitoring provides the information that supports adaptive management.

Local Support/Coordination With Other Programs, and Compatibility of CALFED Objectives

The proposed restoration projects, which are well coordinated with Watershed Conservancies, State and local agencies, educational institutions, and private landowners, are designed to meet long term CALFED objectives in the areas of local watershed stewardship and environmental education. The proposals emphasize timely implementation of actions with a focus on the highest priority species, Chinook salmon and steelhead trout. These upper watershed tasks address the ERP objective of ecosystem quality, while providing other program benefits under the objective of water quality, and also compliment ongoing restoration activities. They also meet CALFED goals for Habitat Restoration, in that they benefit the habitat of priority species. LNF is committed to a coordinated, collaborative watershed management approach, working to understand ecosystem structure and dynamics, reducing conflicts among beneficial uses of the natural resources, and employing adaptive management strategies. The LNF is committed to partnerships with conservancies that promote local watershed stewardship, including educational and interpretive programs.

IV. Project Description

The LNF watershed stewardship proposal includes five watershed-based restoration tasks within the anadromous watersheds of Antelope, Battle, Deer, and Mill Creeks in Tehama and Shasta Counties, and Butte Creek in Butte County (See Vicinity Map). The first activity includes 139 extensive sediment reduction projects in Deer, Mill and Antelope Creek watersheds (Phase II portion of the Forest's 1997 CALFED grant). Additional proposed activities include: completion of comprehensive road surveys in Butte and Battle Creek watersheds; demonstration road and campground restoration projects in the Antelope and Mill Creek watersheds; Colby Creek Meadow condition survey; installation of interpretive sites in all five watersheds, and the establishment of Deer Creek Watershed Stewardship education programs at Chester Elementary and High Schools.

We will complete the assessment of restoration needs across all LNF anadromous watersheds and work closely with the Conservancies, landowners, and other stakeholders to set priorities for restoration projects that meet the goals and strategic objectives of CALFED, the Conservancy's Management Plans, and the Forest's Land and Resource Management Plan (as amended by PACFISH). Restoration activities will focus on the stabilization, restoration, and maintenance of ecological processes and link these projects to the ongoing restoration efforts of other landowners. Each restoration activity emphasizes long term protection and enhancement rather than short term improvement. Adaptive management allows for future activities to build on these initial actions.

These proposals have widespread public support and represent the collaborative effort of many stakeholders in the watersheds. Through workshops and field meetings, criteria to establish priorities for this work were developed. Five primary criteria were used to prioritize sites: 1. Diversion potential, 2. Subwatersheds with the highest biologically or physical sensitivity, 3. Potential to produce the most sediment, 4. Subwatersheds with other ongoing or planned restoration activities, and 5. Greatest chance of being successfully implemented within the planned time frames. For road projects (other than decommissioning), only sites on arterial roads not under consideration for closure were considered. The Forest Service has taken steps to assure the scientific credibility of the actions taken in this proposal by asking individuals from research and academia to participate in the review of the "Road Management Guide", the site selection criteria, and monitoring reports. Further review is provided by members of Conservancies and several task groups (i.e. restoration, monitoring) active in the watersheds.

Analysis of data from an intensive road inventory of the Antelope, Deer and Mill Creek watersheds conducted from 1996-1998 concluded that over 70% of the existing road related erosion was being produced from only 5% of the roads. The analysis showed that two thirds of the existing erosion (73% in Deer Creek) was related to problems at crossings, and that erosion rates on rhyolitic soils was roughly seven times that on other landforms. Crossings with diversion potential accounted most of the potential road related erosion. These findings were integral to design of our proposal, and lead to our hypothesis that the proposed actions can effect a substantial reduction in existing and future sediment production rates.

The **Tasks** described below achieve the mission of CALFED, by addressing improvement and restoration of riparian habitat, wetlands, and natural stream morphology problems in the resource area of ecosystem quality. Several of the activities are common to two or more tasks (watersheds). The **Activities** address ecological and biological restoration objectives, rather than specific implementation actions. Each Task is more specifically addressed by individual task activity, deliverables, schedule and budget in Tables 1-5.

Activity A, Extensive Erosion/Sediment Control Projects Within Antelope, Deer, and Mill Creeks: This activity is composed of restoration actions that target altered hydrographic regimes and are designed to reduce source sediment production and produce more natural patterns of runoff. The actions promote and maintain important ecological processes and functions. The natural ecological processes of runoff and sediment transport contribute to conditions that are favorable to salmon, steelhead and their habitat. Our activities will protect and may improve aquatic habitats by reducing sediment production through a variety of treatments. Activity A will also restore wetlands and riparian areas through decommissioning of roads, and restore natural stream morphology and improve non-anadromous fish passage by upgrading culverts or replacing them with fords or bridges. This

activity links directly to the CALFED grant #1425-98-AA-20-16210 which funded identification of project sites, design of improvements, and environmental analysis of proposed activities.

Activity B. Comprehensive Road Surveys that Quantify Sediment Sources in Battle and Butte Creeks: To establish cause-effect relationships in the Battle and Butte Creek upper watersheds, we feel it is critical to conduct comprehensive road surveys that build on landscape analysis and quantify sediment sources. Once this information is obtained, road restoration and stabilization projects can be used to treat the cause of the identified sediment source. We have established cause and effect links in Deer, Mill, and Antelope Creek watersheds through our extensive road survey. Compiling our road survey with biological attributes and watershed sensitivity, we have been able to target subwatersheds where we can substantially reduce the amount of sediment entering the streams. Our intent is to improve overall resiliency of the system, and enable natural processes of sediment transport and channel erosion and deposition to occur at rates more consistent with the inherent biological and physical characteristics of functioning watersheds.

Activity C. Demonstration Erosion/Sediment Control Projects in Battle, Butte, Mill, and Antelope Creeks: This activity will include several sediment reduction projects in Battle and Butte Creeks with benefits that mirror those of the projects discussed in Activity A above. Our previous road surveys have identified campgrounds in the Antelope, Deer, and Mill Creek watersheds, that due to their locations and design, compromise both floodplain connectivity and important rejuvenation processes associated with flood prone areas. These once biologically active and dynamic areas are now non-point sources of sediment. Compacted soil surfaces reduce infiltration, increase runoff, and limit vegetative growth. We will reduce the amount of compacted soils within the campgrounds and revegetate eroding streambanks with the help of volunteers (possibly our watershed education students). Improved condition of campgrounds can serve as demonstration sites for the recreating public that illustrate integration of recreational needs with biological and ecological resources.

Activity D. Interpretive Sites and Educational Programs in all Five Watersheds: We feel that educating the public, fellow stakeholders, and our youth, on the principles of responsible watershed stewardship is essential to achieving the Forest's and CALFED's long term management objectives for the Bay-Delta system. Providing interpretive displays at highly visible restoration sites, and involving our youth directly with restoration work, provides a hands on learning forum. Displays will focus on responsible watershed stewardship practices and anadromous fisheries resources. Universal design will reduce production costs. The displays will also provide restoration explanations unique to the site, and Agency and Conservancy announcements.

Activity E. Meadow Condition Assessment Including Demonstration Sites: Meadow condition assessments are a critical component in improving our understanding of meadow systems. Meadows play an instrumental role in providing refugia for terrestrial and aquatic species, storing both water and sediment and provide a diverse array of habitats and diverse vegetation. Often we can not clearly target the cause of meadow degradation which leads to poor meadow restoration decisions. Our approach is to use the 228 acre Colby Meadow complex as a demonstration area for both the appropriate level of survey to assist in determining cause and effect relationships and design of appropriate management practices that will improve the condition of the meadow. Surveys will integrate standardized survey protocols, such as Proper Functioning Condition, Stream Condition Inventory, Greenline surveys, and vegetative frequency survey. This information will help determine the condition of the meadow, and provide a baseline for monitoring trends.

Task 1. Antelope Creek Ecological Unit Watershed Stewardship: The Antelope Creek Ecological Unit is located within the Butte Basin Ecological Zone. Because resiliency of this watershed is relatively greater than Deer and Mill, priority for restoration activities is focused on biological attributes. Of the fourteen subwatersheds within our analysis of Antelope Creek, five have been selected as high priority due to their proximity to anadromous reaches and their potential to contribute sediment. In these five subwatersheds, improved aquatic habitat, restoration of wetlands and riparian areas, and restoration of natural stream morphology at crossings are the deliverables. In addition, restoration activities at South Fork Antelope Campground will be implemented to reduce soil compaction and revegetate streambanks. Interpretive displays will be installed at the campground to provide information to recreationists. (Reference Table 1)

Task 2. Battle Creek Ecological Unit Watershed Stewardship: The Battle Creek Ecological Unit is located within the North Sacramento Valley Ecological Management Zone. As noted in the ERP, Battle Creek has the best connection between the river and mountainous areas of any Sacramento River ecological unit. The ERP proposes "to restore important ecological functions and processes, and habitats in a step by step approach over several years." An extensive survey would quantify sources and compliment the recent Mineral Landscape Analysis conducted by the Forest Service that indicates roads are continuing to cause accelerated erosion and sediment delivery. Suitable demonstration sites for restoration have been identified. Working with the Battle Creek Conservancy and private landowners, the Forest Service can demonstrate, on a pilot basis, some of the techniques effective in reducing erosion and sediment delivery. Interpretive displays will be installed to provide information to recreationists. The LNF would contribute time and resources to complete a Road Management Guide and all the engineering site evaluations. (Reference Table 2)

Task 3: Butte Creek Ecological Unit Watershed Stewardship: The Butte Creek Ecological Unit is located in the Butte Basin Ecological Management Zone. An extensive road survey will assess sources of erosion and prescribe treatments. The survey would compliment the Jonesville Landscape Analysis recently conducted by LNF that indicates roads are the primary source of accelerated erosion in the upper watershed. LNF would contribute time and resources to complete a Road Management Guide and all engineering site evaluations. Suitable pilot demonstration restoration sites have been identified . Working with the Butte Creek Conservancy and private landowners, LNF can demonstrate, on a pilot basis, techniques proven to be effective in reducing erosion and sediment delivery. Interpretive displays will be installed at the Jonesville Snowmobile Park and Colby Meadows to provide information to recreationists. The Colby Meadow condition assessment would provide information on meadow attributes, channel stability and vegetation. It would serve as a pilot for sharing information with stakeholders on inventory techniques and monitoring protocol. (Reference Table 3)

Task 4: Deer Creek Ecological Unit Watershed Stewardship: The Deer Creek Ecological Unit is located within the Butte Basin Ecological Management Zone. Restoration sites were selected based on both physical and biological criteria applied to each subwatershed. Of the twenty five subwatersheds studied in the Deer Creek Watershed Analysis, nine high priority subwatersheds were identified. Two of these subwatersheds were selected because they are the location of channel restoration projects planned by the Conservancy. The objective is to treat source areas upstream of that channel restoration. In these nine subwatersheds, improvement of aquatic habitat, restoration of wetlands and riparian areas, and restoration of natural stream morphology are the deliverables. Interpretive displays would be installed at Potato Patch Campground, Deer Creek Falls, and the Deer Creek Trailhead. A Potato Patch Campground host will be established to lead education programs and patrol anadromous reaches near the campground to report fishing violations and harassment of holding salmon. This effort would be closely coordinated with CDF&G and LNF law enforcement officers, who are working to increase presence in several anadromous creeks including Deer Creek. The Chester School District's Watershed Stewardship program would build from the already established Creeksiders program developed by the Deer Creek Conservancy. At the elementary level its focus will be on teaching watershed stewardship principles, and involving the students in watershed restoration projects. At the high school level the program will supplement the current science curriculum with the addition of a course covering watershed stewardship, watershed restoration, anadromous fisheries, watershed dynamics, and managing watershed resources. LNF, Conservancies, schools, and other stakeholders will contribute time to plan and implement this program. (See Table 4)

Task 5: Mill Creek Ecological Unit Watershed Stewardship: The Mill Creek Ecological Unit is also located within the Butte Basin Ecological Management Zone. Restoration sites were selected using both physical and biological criteria applied to each subwatershed. Of the fifteen subwatersheds examined in the Watershed Analysis, five were selected as high priority for restoration actions. Of particular concern is the high percentage of rhyolitic soils in these subwatersheds. The combination of treatments should be effective in reducing sediment delivery and moving flow and sediment transport processes toward their natural condition. Restoration activities implemented at Hole-in-the-Ground and Black Rock Campgrounds will reduce soil compaction, and provide for the revegetation of streambanks. Interpretive displays will be installed at the campgrounds to provide information to recreationists. The Conservancy would assist LNF in their design and location. (Reference Table 5)

Table 1: **Antelope Creek (Task 1)** Activities, Deliverables, and Budget (CALFED Funds Only)

Start and Completion Date	Activity	Deliverables	Budget
9/30/01-9/30/02	**Activity A**, in Subwatersheds, AC10, AC11.		**$318,500** TOTAL
	Reduce Risk of Culvert Failure, 8 ea. Outslope Roads, 1 site, 2 miles. Pave approaches to Bridge, 1 site. Eliminate Diversion Potential, 12 ea	Improve aquatic habitats, reduce excessive sediment.	$152,000
	Decommission Roads, 1 site, 0.5 miles	Restore wetlands and riparian areas; rehabilitate disturbed areas.	$36,500
	Construct Bridge (multiplate arch) 1 ea.	Restore natural stream morphology; reduce hazard and risk from stream crossings, improve fish passage.	$130,000
9/30/01-9/30/02	**Activity A1**, in Subwatersheds, AC-12, 01, 02, 04, 05, 06, 07, 08.		**$234,815** TOTAL
	Eliminate Diversion Potential, 14 ea.	Improve aquatic habitats; reduce excessive sediment.	$74,500
	Pave approaches to bridge, 2 sites	Reduce excessive sediment.	$62,815
	Decommission Roads, 7 sites, 6.5 miles	Restore wetlands and riparian areas rehabilitate disturbed areas.	$97,500
9/30/01-9/30/02	**Activity C**, in Antelope Creek South Antelope Creek Campground Restoration		**$31,635** TOTAL
	Rehabilitate streambanks and riparian vegetation, design campground access and sites to reduce erosion and sediment.	Improve aquatic habitats; reduce excessive sediment; Restore wetlands and riparian areas ; rehabilitate disturbed areas.	$31,635
9/30/01-9/30/02	**Activity D**, in Antelope Creek Interpretive Signing.		**$13,240** TOTAL
	Install Watershed Stewardship display on Ponderosa Way at the entrance to South Fork Antelope Campground.	Increase public education and awareness.	$13,240
9/30/99-9/30/02	Project Management Task	Review project designs and specifications, inspect work in progress, continuous coordination with partners, stakeholders and the public during implementation and monitoring.	**$29,250** TOTAL
* Individual activities are severable. ** Activity A projects are higher priority than A1, A2, etc. These priorities result from criteria developed with partners, and stakeholders.			Total Task Cost **$627,440**

Table 2: **Battle Creek (Task 2)** Activities, Deliverables, and Budget (CALFED Funds Only)

Start and Completion Date	Activity	Deliverables	Budget
7/30/00-7/30/01	**Activity B**, Road Surveys Complete road surveys on National Forest and National Park Service roads.	Identify existing and potential sediment sources.	**$60,350** TOTAL
9/30/99-12/30/01	**Activity C**, Complete NEPA work; Implement stabilization of known sediment sources. Demonstration sites. Reduce risk of culvert failure, 2 ea. Decommission roads 1 site. Eliminate diversion potential 2 ea.	Improve aquatic habitats; reduce excessive sediment; restore wetlands and riparian areas; rehabilitate disturbed areas.	**$50,620** TOTAL
9/30/99-9/30/00	**Activity D**, Interpretive Displays Install interpretive displays at selected demonstration sites and at campgrounds.	Increase public education and awareness of good watershed stewardship practices and anadromous fisheries.	**$13,240** TOTAL
9/30/99-9/30/02	Project Management Task	Review project designs and specifications, inspect work in progress, coordinate with partners, stakeholders and the public during implementation and monitoring. Also NEPA and consultation with NMFS.	**$24,275** TOTAL
* Individual activities are severable. ** Activity A projects are higher priority than A1, A2, etc. These priorities result from criteria developed with partners, and stakeholders.			Total Task Cost **$148,485**

Table 3: **Butte Creek (Task 3)** Activities, Deliverables, and Budget (CALFED Funds Only)

Start and Completion Date	Activity	Deliverables	Budget
7/30/00-7/30/01	**Activity B,** Road Surveys Complete road surveys on National Forest and Bureau of Land Management roads.	Identify existing and potential sediment sources.	**$60,350** TOTAL
9/30/99-9/30/01	**Activity C,** Complete NEPA work: Implement stabilization of known sediment sources. Demonstration sites. Reduce risk of culvert failure, 2 ea. Decommission roads 1 site. Eliminate diversion potential 2 ea.	Improve aquatic habitats; reduce excessive sediment; restore wetlands and riparian areas; rehabilitate disturbed areas.	**$50,620** TOTAL
9/30/99-9/30/00	**Activity D,** Interpretive Displays Install interpretive displays at selected demonstration sites, campgrounds, and Jonesville Snowmobile Staging Area.	Increase public education and awareness of good watershed stewardship practices and the anadromous fisheries resource.	**$13,240** TOTAL
7/30/00-7/30/01	**Activity E,** Colby Meadow Condition Assessment Conduct studies to understand the meadow dynamics using standardized survey protocol, ie. Proper function and condition, Stream classification Inventory, Greenline surveys, etc.	Determine the condition of the meadow and the key processes that shape the meadow.	**$71,360** TOTAL
4/1/02-9/30/02/	**Activity E1,** Colby Meadow Demonstration Projects Complete NEPA work; Implement demonstration projects that will improve the condition of the meadow.	Restore meadow and riparian habitat.	**$56,950** TOTAL
9/30/99-9/30/02	Project Management Task	Review project designs and specifications, inspect work in progress; coordinate with partners, stakeholders and the public during implementation and monitoring.	**$24,275**
* Individual activities are severable. ** Activity A projects are higher priority than A1, A2, etc. These priorities result from criteria developed with partners, and stakeholders.			Total Task Costs **$276,795**

Table 4: **Deer Creek (Task 4)** Activities, Deliverables, and Budget (CALFED Funds Only)

Start and Completion Date	Activity	Deliverables	Budget
9/30/01-9/30/02	**Activity A**, in Subwatersheds, D-28, D-29		**$299,390** TOTAL
	Outslope Roads & pave, 1 site, 1 mile.	Improve aquatic habitats, reduce excessive sediment.	$95,390
	Eliminate Diversion Potential, 3 ea		$27,000
	Decommission Roads, 4 sites, 4 miles Relocate 1 mile	Restore wetlands and riparian areas and rehabilitate disturbed areas.	$152,000
	Construct Ford Crossing, 1 ea.	Restore natural stream morphology and reduce hazard and risk from stream crossings.	$25,000
9/30/01 - 9/30/02	**Activity A1**, in Subwatersheds, D-11, D-12, D16, D19		**$477,750** TOTAL
	Reduce Risk of Culvert Failure, 6 ea	Improve aquatic habitats, reduce excessive sediment.	$76,000
	Outslope Roads & pave, 1 site, 1 mile.		$93,250
	Eliminate Diversion Potential, 7 ea		$67,500
	Decommission Roads 4 sites, 3 miles	Restore wetlands and riparian areas; and rehabilitate disturbed areas.	$152,000
	Construct Ford Crossing, 3 ea.		$37,250
	Construct abutments for portable bridges, 2 sites (Forest owns bridge)	Restore natural stream morphology and reduce hazard and risk from stream crossings.	$51,750
9/30/01-9/30/02	**Activity A2**, in Subwatersheds, D-10, 13, 14, 05, 06 ,07		**$114,670** TOTAL
	Eliminate Diversion Potential, 10 ea.	Improve aquatic habitats, reduce excessive sediment,	$63,670
	Pave approaches to bridge, 2 sites	Reduce excessive sediment	$51,000
9/30/01-9/30/02	**Activity C**, in Deer Creek Alder Creek and Gurnsey Creek Campgrounds Restoration	Improve aquatic habitats; reduce excessive sediment; restore wetlands and riparian areas; rehabilitate disturbed areas.	**$75,930** TOTAL $63,500
	Pave roads and spurs, control vehicle travel.		
	Reduce Risk of Culvert Failure, 1 ea		$12,430
9/30/01-9/30/02	**Activity D**, in Deer Creek Interpretive Signing.		**$18,980** TOTAL
	Install Watershed Stewardship display at Potato Patch, Alder Campgrounds, and Upper Deer Creek Falls, and the Deer Creek Trailhead.	Increase public education and awareness	$18,980
5/01/00-9/30/01	**Activity D1**, Campground Education and Patrol of Anadromous Reaches	Increase public education and awareness of good watershed stewardship practices and the anadromous fisheries	**$38,610** 19,305 annually for two years

8/30/00-6/01/02	**Activity D2**, Chester School System Watershed Stewardship Program Teaching watershed stewardship principles, and involving students in watershed restoration projects. Supplement current science curriculum with the addition of course units covering watershed stewardship, restoration, limnology, anadromous fisheries, watershed dynamics, and managing watershed dynamics	Increased awareness, understanding and appreciation of watershed stewardship at elementary school level. Increased exposure to scientific curriculums, increased knowledge, understanding and capabilities of students at the high school level.	**$49,200** $24,600 Annually to the two schools for two school years
9/30/99-9/30/02	Project Management Task	Review project designs and specifications, inspect work in progress, continuous coordination with partners, stakeholders and the public during implementation and monitoring.	**$93,600**
* Individual activities are severable. ** Activity A projects are higher priority than A1, A2, etc. These priorities result from criteria developed with partners, and stakeholders.			Total Cost **1,168,130**

Table 5: **Mill Creek (Task 5)** Activities, Deliverables, and Budget (CALFED Funds Only)

Start and Completion Date	Activity	Deliverables	Budget
9/30/01 - 9/30/02	**Activity A**, in Subwatersheds, M-11, M-12		**$401,305** TOTAL
	Reduce Risk of Culvert Failure, 13 ea.	Improve aquatic habitats; reduce excessive sediment.	$191,500
	Pave approaches to Bridge, 1 site.		$63,500
	Eliminate Diversion Potential, 10 ea		
	Decommission Roads, 2 sites, 3 miles	Restore wetlands and riparian areas, and rehabilitate disturbed areas.	$102,000
	Construct Portable Bridge Abutments, 1 ea.	Restore natural stream morphology, reduce hazard and risk from stream crossings, improve fish passage.	$24,055
	Construct Ford Crossing, 1 ea.		$20,250
9/30/01- 9/30/02	**Activity A1**, in Subwatersheds, M-08, 09, 10, 06		**$235,690** TOTAL
	Reduce Risk of Culvert Failure, 1 ea.	Improve aquatic habitats; reduce excessive sediment.	$62,500
	Eliminate Diversion Potential, 4 ea.		$23,650
	Pave approach to bridge, 1 site		$20,250
	Construct bridge (multi-plate arch), 1 site	Restore natural stream morphology; reduce hazard and risk from stream crossings; improve fish passage.	$129,290
9/30/01- 9/30/02	**Activity C**, in Mill Creek		**$82,260** TOTAL
	Black Rock and Hole in the Ground, Campgrounds Restoration Complete NEPA documents; Rehabilitate streambanks and riparian vegetation, design campground access and sites to reduce erosion and sediment.	Improve aquatic habitats; reduce excessive sediment; restore wetlands and riparian areas; rehabilitate disturbed areas.	$62,260
	Construct Ford Crossing, 1 ea.		$20,000
9/30/02	**Activity D**, in Mill Creek		**$13,240** TOTAL
	Interpretive Signing.		
	Install Watershed Stewardship display at Black Rock and Hole in the Ground Campgrounds, and Brokenshire Picnic Area.	Increase public education and awareness	$13,240
9/30/99- 9/30/02	Project Management Task	Review project designs and specifications, inspect work in progress, continuous coordination with partners, stakeholders and the public during implementation and monitoring.	**$64,350**
* Individual activities are severable. ** Activity A projects are higher priority than A1, A2, etc. These priorities result from criteria developed with partners, and stakeholders.			Total Cost **$796,845**
Total CALFED grant request for all five Tasks.			Total Cost **$3,017,695**

V. Ecological/Biological Benefits

The primary biological/ecological objectives of our watershed restoration projects address the ERP objective of ecosystem quality. They are designed to improve riparian and fisheries habitat, restore wetlands and natural stream morphology, promote and maintain important ecological processes and function, and to educate the public on the importance of responsible watershed stewardship. Our projects also focus on the Strategic Plan goals that address the recovery of at-risk native species, reverse downward population trends of non-listed native species, and protect and/or restore functional habitat types. Collectively the proposed activities are designed to provide long term benefits to the spring and fall-run chinook salmon and steelhead habitat, compliment other planned and ongoing restoration activities in these watersheds, and contribute to CALFED's long term mission to restore the ecosystem health of the entire Bay-Delta system.

The basis for the major activities in this solicitation, implementation of sediment reduction projects, is found in the Watershed Analysis for Antelope, Deer, and Mill Creek, and Landscape analysis work completed in Battle and Butte Creek watersheds. These analyses identified reduction of surface erosion as a top priority. The analysis concluded that there has been a shift in the erosion regime in the watersheds from one dominated by episodic mass wasting (occurring primarily in the unroaded portions of the watersheds) to one in which surface erosion chronically adds substantial amounts of sediment to the system. Road and stream surveys have concluded that roads are the primary source of accelerated erosion. GIS analysis of transportation system development in these contiguous watersheds indicate that the pulses of disturbances occurred over time, but disturbance has not increased over the past decade on public land, as road densities are decreasing. Roads have also been a cause of nearstream disturbance in these watersheds. Decommissioning of roads in nearstream locations will improve the function of these important areas, including recruitment of large wood, shading and nutrient and sediment storage. The basis for the meadow/riparian restoration projects is provided by stream and vegetation surveys that indicate a decline from historic condition. The basis for the interpretive and educational programs is found in the results of recently completed angler monitoring, and Conservancy Strategy and Existing Conditions Reports which outline the continued need to educate all of the stakeholders in the benefits of good watershed stewardship.

The primary stressors addressed by the projects and activities proposed for this solicitation are: 1. Excessive sediment delivery to aquatic habitats, 2. Human management activities that eliminate or degrade riparian habitat, and 3. Poaching or harassment of a priority species (spring-run chinook salmon). These stressors represent the scientific assumption that roads, poor or inconsistent watershed and streamside management practices, and lack of public knowledge regarding watershed stewardship can cause habitat degradation or destruction, and contribute to the decline of sensitive species. We will be able to test this hypothesis by pursuing a suite of management actions designed to address specific problems. The management actions used to test the following hypotheses stem from careful and creative design and integrate both passive and active adaptive approaches. The high level of uncertainty surrounding the dynamics of streams and stream/watershed interactions make testing these hypotheses difficult, and necessitates a mulit-scale monitoring strategy.

Activity A Questions/Hypothesis: Implementation of sediment control projects

- Are restoration activities implemented as designed?
- Are restoration activities effective in meeting site objectives?
- Do restoration activities result in improved watershed condition (at the subwatershed scale)?
- Reduction in accelerated surface erosion and improvement in near channel condition will result in improved aquatic conditions at the subwatershed (site of activity) scale.
- Do restoration activities result in improved aquatic conditions in anadromous fish habitat?

Activity B Hypothesis: Comprehensive road surveys

Many of our 1997 hypothesis have been validated with the completion of surveys in 1998. The

road surveys are an effective tool to locate and quantify both existing and potential sources of sediment. When used in conjunction with other inventories and analyses, they can provide a strong basis for watershed scale restoration plans. Our current hypothesis is that surveys in Butte and Battle Creeks will provide information useful to development of restoration plans in their upper watersheds

Activity C Hypothesis: Demonstration road and campground restoration projects

- Are restoration activities implemented as designed?
- Are restoration activities effective in meeting site objectives?
- Reduction in accelerated surface erosion and improvement in near channel condition will result in improved aquatic conditions at the subwatershed (site of activity) scale.
- Do restoration activities result in improved aquatic conditions in anadromous fish habitat?
- Public education and improved interpretation and increased monitoring at recreational facilities will reduce the harassment of spring-run chinook and decrease the frequency of fishing violations.

Activity D Hypothesis: Interpretive sites and educational programs

- Public education and improved interpretation and increased monitoring at recreational facilities will reduce the harassment of spring-run chinook and decrease the frequency of fishing violations.

Activity E Hypothesis: Meadow restoration assessment and demonstration projects

- Are restoration activities implemented as designed?
- Are restoration activities effective in meeting site objectives?
- Reduction in accelerated surface erosion and improvement in near channel condition will result in improved aquatic conditions at the subwatershed (site of activity) scale.
- Do restoration activities result in improved aquatic conditions in anadromous fish habitat?

Restoration activities are proposed to provide long term benefits to the spring and fall-run chinook salmon and steelhead trout habitat through the expeditious implementation of on the ground actions that are designed to stabilize, restore, and maintain upper watershed ecological processes. Interpretation sites and education programs are proposed to provide for the long term viability of aquatic and riparian species through human understanding and respectful adherence to watershed stewardship practices, and to support CALFED objectives. The primary benefits of all the activities will be the sharing of research, planning, design, and results from implementation, and monitoring efforts among fellow stakeholders. Sharing successes, failures, and strategies among stakeholders will broaden our knowledge base of ecosystem function and dynamics and generate additional passive and active adaptive management strategies. Secondary benefits include maintenance and improvement of water quality, increased water storage in riparian areas, maintenance of stable water temperatures, and preservation of future management options.

Linkages

A portion of this solicitation, namely the extensive sediment reduction/stabilization activities, proposed within Deer, Mill, and Antelope Creek watersheds, represents Phase II of the Forest's 1997 grant, (1425-98-AA-20-16210) "Watershed Improvement: Stabilization of potential sediment sources within the Deer, Mill, and Antelope Creek watersheds on LNF lands." Phase I of the 1997 grant included stabilization of sediment sources on a pilot basis, updating and expanding existing sediment source inventories, and developing a Road Management Guide. The inventories and RMG are the basis for a large portion of this restoration proposal. Road inventories in Deer, Mill, and Antelope Creek watersheds were updated and expanded. In 1998 and all sites underwent an engineering evaluation that included a hazard and risk assessment and preliminary restoration designs. The RMG will be completed this summer, as will the stabilization of the pilot sediment sources.

This work has allowed LNF to develop a comprehensive, site specific 1999 grant proposal for extensive sediment control/stabilization activities in these three watersheds (Activity A). The proposals in each of the five watersheds are linked to our planning, design, research and implementation experiences from the 1997 proposal. They have been prioritized using criteria developed by several local stakeholder groups.

The Antelope Creek watershed projects will help meet Target 7 under Ecological Processes found on page 267 of the ERP. Target 7 states "Develop and implement comprehensive watershed programs to protect water quality, increase summer base flows, and protect and restore other resources such as riparian vegetation."

The Battle Creek projects will help meet Target 1 under Riparian and shaded Riverine Aquatic Habitats found on page 215 of the ERP. Target 1, Stage 1 Action states, "Refine and implement a watershed management plan to reduce the transport of fine sediment to the creek channel, and to protect and restore riparian habitat in conjunction with local landowners and local, state, and federal agencies active in the watershed." The projects also meet Target 1 under Freshwater Fish Habitat and Essential Fish Habitat on page 216 of the ERP which states, " Maintain and improve existing freshwater fish habitat and essential fish habitat through the integration of actions described for ecological processes, habitats, and stressor reduction or elimination."

The Butte Creek projects will help meet Target 7 under Ecological Processes found on page 267 of the ERP. Target 7, Stage 1 Action states "In conjunction with the Butte Creek Conservancy and local, state, and federal agencies, develop and implement elements of a watershed management plan to enhance base flows, reduce the transport of fine sediment into the creek channel, and protect and restore riparian habitat."

The Deer Creek projects will help meet Target 7 under Ecological Processes found on page 267 of the ERP. Target 7, Stage 1 Action states "In conjunction with the Deer Creek Watershed Conservancy and local, state, and federal agencies, develop and implement elements of a watershed management plan to increase the summer base flows, reduce the transport of fine sediments into the creek channel and reduce the ecological risk associated with catastrophic events." The projects also support recommendation 2C, from the Deer Creek Conservancy Watershed Management strategy to aggressively treat known sediment sources. The strategy is to "encourage" road maintenance standards for minimum siltation on all public and private dirt roads within the watershed."

The Mill Creek projects will help meet Target 7 under Ecological Processes found on page 267 of the ERP. Target 7, Stage 1 Action states "In conjunction with the Mill Creek Watershed Conservancy and local, state, and federal agencies, develop and implement elements of a watershed management plan to reduce the transport of fine sediments into the creek channel, enhance base flows and to protect and restore riparian habitat." The projects also support objectives A-D of the Mill Creek Watershed Management Strategy which focus on education, development of water quality and aquatic monitoring programs, implementing projects designed to protect water quality and aquatic resources, and involving all stakeholders in verifying watershed conditions and areas of critical concern.

System-Wide Ecological Benefits

This proposal provides for the expeditious implementation of on-the-ground restoration projects which were planned and evaluated in Phase I of our 1997 grant. This proposal also represents a well coordinated watershed wide effort to prioritize complimentary projects that together address many of CALFED's goals and objectives.

Compatibility with Non-Ecosystem Objectives

This upper watershed proposal provides benefits for other CALFED objectives including water quality, water storage, water temperatures, and public education. Results of this proposal could have broad application under CALFED's Watershed Management Program. There are no known conflicts with any CALFED objectives. There are third party benefits of improved ecosystem quality to all Forest users who benefit from the goods, services, and experiences the Forest provides, and all downstream publics who depend on the upper watersheds to provide a sustained yield of high quality water.

VI. Technical Feasibility and Timing

This project proposal represents a coordinated effort among the LNF, Watershed Conservancies, and other stakeholders to identify the high priority activities consistent with CALFED's objectives and address the focused actions of the 1999 CALFED solicitation. For the past year, we have been developing a Road Management Guide (RMG) that will help all land managers within these anadromous watersheds to develop and prioritize restoration sites and treatment methods that are consistent CALFED objectives.

Other activities and projects considered, but not selected, were fire risk assessments and thinning demonstrations using low ground pressure equipment in Butte and Deer Creek watersheds, and a new land acquisition proposal for Deer and Mill Creek watersheds. The fire risk assessments were not universally supported by all stakeholders, nor were they given high priority in this years solicitation package. The Forest has initiated a land acquisition process as part of the 1997 grant award, but will not have an acquisition priority list completed until 2000.

The activities of the preferred alternative address the most pressing issues of the upper watershed, that of reducing sediment stressors, and restoring near stream conditions and processes. Building and sharing road databases, public awareness and education, and understanding meadow function are additional benefits. Selected treatment designs, implementation methods, and schedules will result from a NEPA analysis involving the public, Conservancies, and other stakeholders. A large portion of this NEPA analysis is underway. Additional analysis could be initiated in 2000 with many site restoration activities beginning in 2001.

Task 1 Antelope Creek: A substantial portion of the NEPA work associated with restoration projects proposed for Antelope will be accomplished by 2000, including consultation with NMFS, and the State Historic Preservation Office (SHPO). This work was made possible partially through the 1997 grant awarded to the Forest. NEPA will be initiated for the interpretive sites and restoration work at Antelope Creek Campground in 2000. Implementation of interpretive sites will begin in 2000 with the campground restoration scheduled to begin in 2001.

Task 2 Battle Creek: Coordination and planning work has been completed to initiate the road survey work. The results of the survey, and contributed engineering evaluations and a RMG would provide the basis for future CALFED (or other source) sediment/erosion control proposals. NEPA work and consultation with NMFS and SHPO, will be initiated for the demonstration sediment stabilization and interpretive site projects in 2000.

Task 3 Butte Creek: All necessary coordination and planning work has been completed to initiate the road survey work in 2000. The results of the survey, and contributed engineering evaluations and a RMG would provide the basis for a later CALFED grant road sediment/erosion control proposal. NEPA work and consultation with NMFS and SHPO would be initiated for the demonstration sediment stabilization and interpretive site projects in 2000 with implementation occurring in 2001 and 2002. A service contract would be prepared for the road survey and meadow restoration assessment activities. The meadow condition assessment could begin as early as 2000, followed by NEPA for the demonstration projects scheduled for 2002. .

Task 4 Deer Creek: A substantial portion of the NEPA work associated with restoration projects proposed for Deer Creek will be accomplished by 2000 including consultation with NMFS and SHPO. This work was made possible partially through the 1997 grant awarded to the Forest. Planning, and potentially NEPA will be initiated for the interpretive sites in 2000. Implementation of interpretive sites will also begin in 2000.

Task 5 Mill Creek: A substantial portion of the NEPA work associated with the extensive road restoration projects proposed for Mill Creek will by 2000 including consultation with NMFS and SHPO. NEPA work will be initiated for the interpretive sites and restoration work at Black Rock and Hole-in-the-Ground Campgrounds in 2000. This grant would help fund this additional NEPA work. Implementation of interpretive sites will begin in 2000 with the campground restorations scheduled to begin in 2001.

VII. Monitoring and Data Collection Methodology

Biological/Ecological Objectives: There are three primary ecological objectives. (1) reduce sediment production and improve both nearstream (riparian) and watershed conditions within the subwatersheds; (2) improve aquatic habitat conditions within the five watersheds; (3) reduce potential harassment (and poaching) of spring run salmon in Deer Creek. All three objectives assume that though conditions within the watersheds is generally "good" there is value in improving conditions and providing an additional protection as insurance against fires, floods, spills and other disturbances which could affect these watersheds and the anadromous habitat they support.

The conceptual model developed for monitoring the aquatic component of the President's Forest Plan in the Pacific Northwest was employed in developing our monitoring approach. This model links ecosystem processes with natural and anthropogenic disturbances, and describes key ecosystem elements of the headwaters (upslope), riparian-floodplain and stream channel components of watersheds, and the aquatic biota they support. Our rationale is that a multi-scale approach is essential. Though important goals are associated with the large spatial scale (improving and protecting anadromous habitat and strengthening system resiliency), actions to reach those goals are implemented at the site scale. Implementation of actions must be measured at the site scale, and effectiveness is best measured at this scale. As the spatial scale of analysis increases, cause and effect becomes harder to ascertain, Limitations of our approach center on the problem of detecting change at the large scale, especially given natural variation of effects and short monitoring periods. A key assumption of the approach (monitoring and restoration) is that bringing key ecosystem elements (surface erosion, near channel condition) closer to their natural condition will result in improved system health and condition. There are large number of alternative monitoring approaches. Alternatives we considered included modeling sediment production and emphasizing measurements at fewer spatial scales. Primary components of the proposed monitoring strategy are ongoing. Implementation and on-site effectiveness would be performed during this phase of the project (though effectiveness following large storm events would take longer). Watershed and aquatic condition monitoring would continue past this phase of the project.

Monitoring Parameters and Data Collection Approach: These are described in the attached table.

This monitoring supplements and is complimentary to the long term monitoring efforts already established in the Antelope, Deer and Mill Creek watersheds. The State Department of Fish and Game provides leadership for adult fish counts, and the Department of Water Resources currently collects water quality data. The two primary private timber land owners collect temperature data.

Data Evaluation Approach: Invertebrate sampling follows the State Rapid-Bio Assessment protocols. Samples are processed at the USFS Aquatic Analysis Lab in Logan, Utah.

Review of results will be provided by stakeholders, agencies and the Conservancies active in these watersheds. Those involved possess considerable expertise in fisheries, watershed, and water quality. Data will be presented annually. Implementation data will be used in the short term to revise ongoing or planned activities as necessary. Existing monitoring efforts provide a baseline for future monitoring activities. Data will be compared to objectives for the project (site scale), in terms of trend over time (subwatershed condition, and aquatic condition), and to data from other comparable streams to further ascertain trend and condition (subwatershed aquatic condition). Over the longer term (10+ years) correlations between trends in watershed condition and aquatic condition will be made.

Table 6: Monitoring Parameters and Data Collection Approach: Lassen NF Upper Watershed Stewardship

Question to be Evaluated/ Hypothesis	Monitoring Parameter (s) and Data Collection	Data Evaluation Approach	Comments/ Study Priority
Are restoration activities implemented as designed?	Parameters are not identical for all projects, rather they vary by project, focused on the key activities. Key implementation questions are identified and tracked for each project. Monitoring occurs during project implementation, frequency varies by complexity of action.	Simple summary statistics (number of sites, # implemented, etc).	Priorities are: correction of problems during implementation, and transfer of findings to planning of future projects (e.g. through changes in contract specifications).
Are restoration activities effective in meeting onsite objectives?	Parameters vary by project. Response to high runoff events is required for channel/crossing projects. Where appropriate USFS sampling protocols for BMP effectiveness are employed. Emphasis is on erosion, visual evidence of rilling, deposition, sloughing, etc. are standard criteria. Channel projects will be evaluated after large storms (duration will be long term)	Each project assessed individually. Annually, results from all projects will be summarized. Diversion potential and other sediment risk production activities will be assessed by comparing response in watersheds with treatments to those without treatments, following storm events	Priority is identification of site scale problems so results can be fed back into future designs and prescriptions
Reduction in accelerated surface erosion and improvement in near channel condition will result in improved aquatic conditions at the subwatershed (site of activity) scale?	Parameters vary by project, depending on project goals. Typically, in-channel monitoring will use USFS R5 Channel Inventory Protocols, and emphasize sediment in channel (particle counts, pool tail fines, residual pool depths), and riparian recovery (temperature, shade). Number of measurements varies by attribute, sites will be monitored before and after implementation, then once every five years after major runoff events.	Results from monitoring reach will be compared before and after (long term) projects. Typically, mean and ranges of attributes will be displayed, and compared. Results will also be compared local and regional reference conditions.	Post activity sites will be added to ongoing PACFISH monitoring sites.

Table 6: Monitoring Parameters and Data Collection Approach: Lassen NF Upper Watershed Stewardship (continued)

Question to be Evaluated/ Hypothesis	Monitoring Parameter (s) and Data Collection	Data Evaluation Approach	Comments/ Study Priority
Do restoration activities result in improved watershed condition (at the subwatershed scale)	Parameters include: road density, #channel crossings per mile, # crossings with diversion potential nearstream road density, nearstream disturbance, Equivalent roaded acres (%), and estimated road sediment production from selected crossings. Attributes are calculated using GIS layers, except for road crossing related erosion, which is estimated in the field using updated USFS protocols (baseline established by Meadowbrook Conservation Associates for Mill and Deer Creeks)	At five year intervals, parameters are collected (crossing erosion is collected during effectiveness monitoring). Results are compared to baseline, and trends are assessed.	Extend current PACFISH-monitoring.
Do restoration activities result in improved aquatic conditions in anadromous fish habitat?	Sites within anadromous habitat are monitored annually to assess trend in attributes, which include particle counts and fine estimates at pool tails, residual depth and pool sediment lens length, wood, embeddedness, shade, temperature, and macroinvertebrates. Spawning surveys are conducted annually in these reaches. Holding survey counts of adult Chinook are conducted annually for each creek. All these elements are long term, and will be continued into the foreseeable future	Habitat measures are typically expressed as means (and range). Data from tributaries, main stem and site monitoring described above are used to assess activity effects. Comparisons also made to regional and local reference sites to gauge year to year and other "natural" variability	
Public education and improved interpretation and increased monitoring at recreational facilities will reduce the harassment of spring-run chinook, and decrease the frequency of fishing violations	The number of fishing violations is tracked. Stream reaches near recreation sites are monitored for fishing activity and harassment during summer at heavy use and random times. Violations are tracked long term. "Harassment" monitoring will end when funds for this two year activity expire.	Results after implementation are compared with pre-project (1998-99) results	All monitoring elements are rated equally high in priority.

VIII. Local Involvement

After developing preliminary proposals with the watershed Conservancies and other interested stakeholders, a letter outlining our planning activities was sent to the Butte, Plumas, Shasta, and Tehama County Boards of Supervisors and Planning Departments. These eight entities were also notified of this formal proposal prior to this submittal. A copy of the notification letter is attached in Appendix A.

A list of the major participants and collaborators on this project proposal is included on the title page of this document. The Forest has developed strong working relationships with the Battle, Butte, Deer, and Mill Creek Conservancies and the two principal landowners, Sierra Pacific Industries, and Collins Pine Company. Members of these groups as well as the State Department of Fish and Game, Department of Water Resources, the U.S. Fish and Wildlife Service, private consultants, and interested publics all contributed to the development and prioritizing of the proposed tasks and activities included in this solicitation.

The Forest has developed a public scoping list which includes all parties who have expressed an interest in watershed restoration activities, or who could potentially be affected by any of the proposed projects. We have conducted meetings and made informal contacts to help us assess the potential issues and conflicts. To date we have found no one opposed to doing watershed restoration work on the Forest. All Forest users, however, expect informed decisions and accurate display of consequences. There will be trade-offs and third party consequences for some restoration activities at the site scale. Potential third party impacts could include the loss of vehicle access to some roads, trails, and recreational facilities that may be closed, reduced, or decommissioned to meet the objectives of the proposal.

It is our goal that through public and stakeholder involvement and education, timely fully mitigated restoration proposals can be successfully implemented, resulting in improved upper watershed ecosystem health. The collective stewards of the upper watersheds believe their restoration work can make a significant contribution to the CALFED mission of improving ecosystem health and water management for beneficial uses of the entire Bay-Delta system.

IX. Cost

Budget costs for the proposed tasks and activities are summarized in Tables 7-11. The requested CALFED funding to complete all tasks and activities as detailed in the table is $3,017,695. The emphasis of this funding request is on implementation of erosion control and habitat restoration work designed to benefit priority species (principally, spring and fall-run chinook salmon, and steelhead trout). Tasks and activities are severable to respond to lesser funding amounts. Much of the work is also designed to educate the public and other stakeholders in the principles of good watershed stewardship, and what they can do to assist achievement of CALFED objectives for ecosystem health and water management across the entire Bay-Delta system. The Road Survey Tasks proposed for Battle and Butte creek watersheds along with contributed engineering site evaluations and a completed Road Management Guide would serve as a basis for a later sediment/erosion control CALFED grant proposal.

Task	Year 2000 Budget	Year 2001 Budget	Year 2002 Budget	Total
1. Antelope Creek	$112,900	$282,500	$232040	$627,440
2. Battle Creek	$76,800	$71,685	$0	$148,485
3. Butte Creek	$83,050	$135,630	$58,115	$276,795
4. Deer Creek	$186,900	$467,250	$513,980	$1,168,130
5. Mill Creek	$142,300	$355,700	$298,845	$796,845
Total	$601,950	$1,312,765	$1,102,980	$3,017,695

The following discussion describes how each cost column is determined and what types of work are included in the estimates.

Direct Labor Hours: This figure represents the total number of hours that a group of Forest Service employees is expected to spend accomplishing the specific Task Activity.

Direct Salary and Benefits: The salary estimated represents the average of several levels of Forest Service employees necessary to complete the task or activity. For Activity "A" these costs would include survey and design of structures, construction contract preparation and administration, and implementation monitoring. For Activity "B" these costs would include contract preparation and administration and data compilation and analysis. For Activity "C", these costs would include construction survey and design, contract preparation and administration. For Activity "D", these costs would include some contract preparation and administration and actual construction and implementation of interpretive displays.

Service Contracts: The estimated cost represents the total time, salary, and any materials required of a contractor or possibly force account crews to complete the task or activity. Service contracts are planned for some of the road erosion control work in Activity "A", the road surveys in Activity "B", the design of interpretive displays in Activity "D", and the Colby Meadows condition study in Activity "E".

Material and Acquisition Costs: These costs include all those materials needed to accomplish a task or activity that have not been accounted for in a service contract. These costs include the materials for the interpretive displays and Chester school system watershed stewardship program in Activity "D".

Miscellaneous and other Direct Costs: These costs include all those services or supplies necessary to support the logistics of each task activity and could include printing, copying, and rental needs. We are able to absorb many of these every-day costs into our existing budgets.

Overhead and Indirect Costs: The Lassen National Forest assesses an overhead cost of 17% to direct salary and miscellaneous costs.

Total Cost: Includes all funding requested of CALFED necessary to accomplish a task activity. The Forest's approved and tentative cost share contributions are shown in Table 13.

Schedule: The deliverable, budget, and start/completion dates for each task are shown in Tables 1-5. All task activities are scheduled for completion between 2000 and 2002. Because most of the Tasks involve implementation work, payment would be made when a task or activity has been successfully completed.

Several activities could be incrementally funded if allowances could be made to extend the initial completion dates. Planning, design, consultation, and environmental documentation will be completed for the majority of the road restoration work by 2000. Actual implantation could be extended beyond two years without any additional NEPA being required. Implementation of the three campground proposals could also be incrementally funded as well as the demonstration projects associated with Colby Meadows.

Tables 7-11: Budget Costs to Accomplish the Task Activities

Table 7: Task 1 Antelope Creek Watershed Restoration Budget Costs (CALFED Funds Only)

Activity	Direct Labor Hours	Direct Salary and Benefits	Service Contracts	Material and Acquisition Costs	Misc. and Other direct Costs	Overhead and Indirect Costs	Total Task Cost
A	1000	$25,000	$250,000	$	$12,500	$31,000	$318,500
AI	720	$18,000	$185,000	$	$9,000	$22,815	$234,815
C	100	$2,500	$25,000	$	$1,250	$2,885	$31,635
D	40	$1,000	$10,000	$	$1,000	$1,240	$13,240
Proj Mgt	960	$24,000	$	$	$1,000	$4,250	$29,250
Totals	2820	$70,500	$470,000	$	$24,750	$62,190	$627,440

Table 8: Task 2 Battle Creek Watershed Restoration Budget Costs (CALFED Funds Only)

Activity	Direct Labor Hours	Direct Salary and Benefits	Service Contracts	Material and Acquisition Costs	Misc. and Other direct Costs	Overhead and Indirect Costs	Total Task Cost
B	200	$5,000	$50,000	$	$	$5,350	$60,350
C	160	$4,000	$40,000	$	$2,000	$4,620	$50,620
D	40	$1,000	$10,000	$	$1,000	$1,240	$13,240
Proj Mgt	800	$20,000	$	$	$750	$3,525	$24,275
Totals	1,200	$30,000	$100,000	$	$3,750	$14,735	$148,485

Table 9: Task 3 Butte Creek Watershed Restoration Budget Costs (CALFED Funds Only)

Activity	Direct Labor Hours	Direct Salary and Benefits	Service Contracts	Material and Acquisition Costs	Misc. and Other direct Costs	Overhead and Indirect Costs	Total Task Cost
B	200	$5,000	$50,000	$	$	$5,350	$60,350
C	160	$4,000	$40,000	$	$2,000	$4,620	$50,620
D	120	$1,000	$10,000	$	$1,000	$1,240	$13,240
E	260	$6,500	$55,000	$	$3,250	$6,610	$71,360
E1	180	$4,500	$45,000	$	$2,250	$5,200	$56,950
Proj Mgt	800	$20,000	$	$	$750	$3,525	$24,275
Totals	1,720	$41,000	$200,000	$	$9,250	$26,545	$276,795

Table 10: Task 4 Deer Creek Watershed Restoration Budget Costs (CALFED Funds Only)

Activity	Direct Labor Hours	Direct Salary and Benefits	Service Contracts	Material and Acquisition Costs	Misc. and Other direct Costs	Overhead and Indirect Costs	Total Task Cost
A	940	$23,500	$235,000	$	$11,750	$29,140	$299,390
A1	1,500	$37,500	$375,000	$	$18,750	$46,500	$477,750
A2	360	$9,000	$90,000	$	$4,500	$11,170	$114,670
C	240	$6,000	$60,000	$	$3,000	$6,930	$75,930
D	60	$1,500	$15,000	$	$750	$1,730	$18,980
D1	2,000	$30,000	$	$	$3,000	$5,610	$38,610
D2	80	$2,000	$30,000	$10,000	$2,100	$5,100	$49,200
Proj Mgt	3,080	$77,000	$	$	$3,000	$13,600	$93,600
Totals	8,260	$186,500	$805,000	$10,000	$46,850	$119,780	$1,168,130

Table 11: Task 5 Mill Creek Watershed Restoration Budget Costs (CALFED Funds Only)

Activity	Direct Labor Hours	Direct Salary and Benefits	Service Contracts	Material and Acquisition Costs	Misc. and Other direct Costs	Overhead and Indirect Costs	Total Task Cost
A	1,260	$31,500	$315,000	$	$15,750	$39,055	$401,305
A1	740	$18,500	$185,000	$	$9,250	$22,940	$235,690
C	260	$6,500	$65,000	$	$3,250	$7,510	$82,260
D	40	$1,000	$10,000	$	$1,000	$1,240	$13,240
Proj Mgt	2,120	$53,000	$	$	$2,000	$9,350	$64,350
Totals	4,420	$110,500	$575,000	$	$31,250	$80,095	$796,845

Table 12: Estimated Quarterly Budget by Task For the Three Year Period

Task	Quarterly Budget Jan-Mar 00	Quarterly Budget Apr-Jun 00	Quarterly Budget Juil-Sep 00	Quarterly Budget Oct-Dec 00	Total 2000 Yearly Budget
Task 1	$22,500	$33,950	$33,950	$22,500	$112,900
Task 2	$15,360	$23,040	$23,040	$15,360	$76,800
Task 3	$16,610	$24,915	$24,915	$16,610	$83,050
Task 4	$37,380	$56,070	$56,070	$37,380	$186,900
Task 5	$28,450	$42,700	$42,700	$28,450	$142,300

Task	Quarterly Budget Jan-Mar 01	Quarterly Budget Apr-Jun 01	Quarterly Budget Jul-Sep 01	Quarterly Budget Oct-Dec 01	Total 2001 Yearly Budget
Task 1	$56,500	$84,750	$84,750	$56,500	$282,500
Task 2	$14,200	$21,270	$22,015	$14,200	$71,685
Task 3	$27,100	$40,715	$40,715	$27,100	$135,630
Task 4	$93,450	$140,175	$140,175	$93,450	$467,250
Task 5	$71,100	$106,750	$106,750	$71,100	$355,700

Task	Quarterly Budget Jan-Mar 02	Quarterly Budget Apr-Jun 02	Quarterly Budget Jul-Sep 02	Quarterly Budget Oct-Dec 02	Total 2002 Yearly Budget
Task 1	$46,400	$68,620	$69,620	$46,400	$232,040
Task 2	$0	$0	$0	$0	$0
Task 3	$11,600	$17,415	$17,500	$11,600	$58,115
Task 4	$102,800	$154,190	$154,190	$102,800	$513,980
Task 5	$58,500	$85,555	$96,290	$58,500	$298,845

X. Cost Sharing

The Forest is continually seeking supplemental funding for watershed and fisheries improvement, sediment/erosion control, and road restoration work within these five anadromous watersheds. Considering the current restrictions on National Forest timber sales in three of these watersheds, Forest Service funds for this kind of project would be limited to at most $20,000 per year from timber sale receipts. Available watershed and fisheries improvement funds are expected to be $100,000 annually, and contributions from recreation management are expected to be $12,000. The Forest currently does not have a dependable engineering funding source for road restoration work, only a road maintenance budget. The Forest, however, was successful this year in obtaining a $500,000 aquatic restoration grant from the Regional Office, of which $455,000 will be contributed to restoration projects in the Deer, Mill, and Battle Creek watersheds. These restoration activities include road decommissioning and closures, culvert upgrades, trail reconstruction, rock crushing and surfacing, and restoring riparian revegetation. The 1997 Phase I CALFED grant was instrumental in the forest's success in acquiring these funds.

The Forest has also been successful in leveraging some restoration funding with help from our cost share road partners, Collins Pine Company and Sierra Pacific Industries. Collins Pine will contribute $10,000 worth of equipment and manpower to decommission two cost share roads in Deer Creek, and Sierra Pacific is planning to

contract for a road survey on its holdings in Antelope Creek watershed following the same protocols previously used in the watershed. The estimated value of this contribution is $30,000.

Although these occasional supplemental funding sources allow us to continue our erosion/sediment control and watershed restoration programs, our backlog of projects can not be significantly reduced without additional funding sources such as CALFED. Without any support, we believe it could take up to 20 years to rehabilitate high priority problem sites, and other sites would be deferred indefinitely. Our current budget just to maintain our 3,627 miles of roads is $505,000, and our present deferred maintenance backlog costs are estimated at $2,945,000. If a large portion of this grant is awarded, we have tentative approval from the Regional Office, that additional Forest Service watershed restoration funds, potentially another $100,000 annually, could be made available to the Forest to further leverage these restoration efforts.

Table 13: Cost Share Contributions by Type of Activity

A. Extensive Sediment Reduction Projects
B. Comprehensive Road Surveys That Pinpoint Sediment Sources
C. Demonstration Road and Campground Restoration Projects
D. Interpretive Sites and Educational Programs
E. Meadow Condition Assessment Including Demonstration

Activity	Source 1 of Cost Share Funding	Amount	Level of commit-ment	Source 2 of Cost Share Funding	Amount	Level of Commit-ment	Total Cost Share Amount
A	FS Fish & Water FS 10% Grant	$200,000 $455,000	Approved Approved	FS Regional Office Water FS 10% Grant	$250,000 $750,000	Tentative Tentative	$450,000 $1,205,000
B	FS Engi-neering	$30,000	Approved				$30,000
C	FS Timber Sale Collec-tions	$60,000	Approved				$60,000
D	FS Rec FS Ed Dona-tions	$12,000 $12,000	Approved Approved				$24,000
E	FS Fish & Water	$50,000	Approved	FS Regional Office Water	$50,000	Tentative	$100,000
Proj Mgt	FS Prog Mgt	$50,000	Approved				$50,000
Totals		**$869,000**	Approved		**$1,050,000**		**$1,919,000**

XI. Applicant Qualifications

The Lassen National Forest has a staff of well qualified and experienced resource professionals. The key staff that would provide oversight for project planning and implementation would include fishery biologists, hydrologists and engineers with support from archaeologists, wildlife biologists, botanists, foresters, contracting specialists and fiscal administrators. Members of the group have extensive experience in watershed restoration and knowledge of the subject watersheds. In addition to the existing staff, support by other qualified resource professionals is available from other Forests, through service contracts, and volunteer programs to assist in project planning, data collection and analysis, and project implementation.

The Lassen National Forest has strengthened its role in the coordination of watershed management planning efforts with the Battle, Butte, Deer, and Mill Creek Watershed Conservancies, Sierra Pacific Industries, Collins Pine Company, State and local agencies, and other stakeholders by committing two resource specialists professionals. We view the collaborators as ongoing participants in the areas of project planning and implementation,

especially where there are mutual interests and needs (e.g. cost-share roads). The extent of the collaborators' involvement is growing and is expected to become significantly greater as the Conservancy's efforts continue and the results of these initial proposals are shown to be effective.

Lassen National Forest, Almanor Ranger District Staff, Positions and Qualifications

Ken Roby — District Fisheries Officer.
B.S. Conservation of Natural Resources, M.S. Aquatic Ecology. Two years as Fisheries Biologist, East Bay Regional Parks. Twenty years with Forest Service including Fisheries, Hydrology and Resource Officer positions (Six Rivers, Plumas, Lassen, and PSW-Albany). Experience in program planning, watershed restoration and monitoring.

Susan Chappell — District Fisheries Biologist
B.S. Natural Resources Management. Two years as Wildlife Biologist, California Department of Fish and Game. Two years as Wildlife Biologist, Forest Service (Plumas). Eight years as Fisheries Biologist, Forest Service (Lassen). Experience in recommending stream crossing designs; road and landing decommissioning to benefit aquatic resources; program planning and implementation.

Diane Watts — District Archaeologist.
B.A. Anthropology, M.A. Anthropology. Twenty two years as an Archeologist.

Mark Williams — District Wildlife Biologist.
B.S. Wildlife Management. Six years experience as wildlife biologist, three years experience in botany. Other experience in fire management, silviculture, and timber sale administration.

Greg Napper — Transportation Planner/Engineer.
B.S. Civil Engineering. 21 years with the Forest Service with experience in all aspects of Road Engineering including, reconnaissance, design, operations and maintenance. Road Manager for 15 years (Stanislaus), with experience in planning and implementation of a variety of road projects. Have acted as District CALFED Project Engineer for the past year.

Russ Volke — District Silviculturist
B.S. Forest Watershed Management. Ten years in Forest Management on the Gila National Forest and ten years in Timber Management on the Lassen National Forest Service. Certified Silviculturist since 1985. Experience in writing riparian restoration vegetation management prescriptions. Have acted as District CALFED Coordinator for the past year.

Carolyn Napper — District Watershed Staff Officer. B.S. Marketing, M.S. Soil Science. Two years as a Private Agricultural Consultant. Two years as a forest Soil Scientist, and 8 years as District Watershed and Range Staff Officer on the Stanislaus N.F. Experience in planning, design, and implementation of watershed restoration practices for road decommissioning, road relocation, landing restoration, campground improvements, meadow restoration, and channel stabilization.

Lassen National Forest Supervisor's Office Staff, Positions and Qualifications

Steve Young Forest Hydrologist.
B.S. Forest Management, M.S. Watershed Management. Two years as sale preparation forester and two years as Zone Hydrologist (Plumas). Four years as District Resource Officer and seventeen years as Forest Hydrologist (Lassen). Experience in watershed restoration, planning and implementation.

Melanie McFarland Forest Fisheries Biologist.
B.S. Fisheries. Five years of seasonal fisheries experience working for private organizations, consultants and the California Department of Fish and Game. Three years as Fisheries Biologist with the U.S. Fish and Wildlife Service. Eight years as Forest Fisheries Biologist (Lassen). Experience in program planning and implementation.

Rick Kennedy Assistant Forest Engineer
B.S. Civil Engineering. Registered Civil Engineer in the State of California. Thirty four years with the Forest Service working in all engineering disciplines including roads, bridges, dams, buildings, water systems, and sewer systems.

Jess Bengoa Acting Forest Engineer
M.S. Civil Engineering. Registered Civil Engineer in the State of California. Twenty One years with the Forest Service in all engineering disciplines including roads, bridges, dams buildings, water & sewer systems etc.

Beth Corbin Forest Botanist
B.S. Botany, M.S. Botany/Plant Ecology. Forest Service experience as fuels and forestry technician. Eight years as Forest Botanist (Lassen). Experience in recommending and collecting native plant species for revegetation projects.

Elaine Courtright Acting Forest Chief Financial Officer
Associate of Arts and three years college course work. Ten years of accounting and business administrative experience in private sector. Twenty years of accounting and business administrative experience in Forest Service which includes seven years as Forest Budget & Accounting Officer. Currently on 120-day detail to present position.

Miley Sutherland Forest Contracting Specialist
B.S. Forestry, M.S. Business Administration. Contracting Officer for nine years with the Forest Service, and six years with the USDA Animal and Plant Health Inspection Service.

X. COMPLIANCE WITH STANDARD TERMS AND CONDITIONS

Per Table D-1 (Attachment D) in the CALFED RFP, no Federal forms are required to be submitted with this proposal. Forms 4099n (Additional Standard Clauses) and 4247 (Contracts with the United States) will be submitted as required before or at the time of final contract award.

Appendix A

Vicinity Map

Appendix B

Letters of Support

MILL CREEK CONSERVANCY

P.O. Box 188 • Los Molinos, CA 96055
(916) 595-4493 • 384-2734

April 12, 1999

Russ Volke
Lassen National Forest
P. O. Box 767
Chester, CA 96020

SUBJECT: 1999 CALFED Ecosystem Restoration Proposal

Dear Russ:

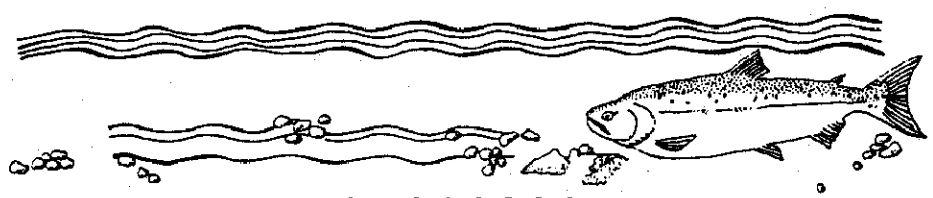
Thank you for the opportunity to review the draft proposal of ecosystem restoration proposal for Lassen National Forest. I also appreciated discussing the items specific to the Mill Creek watershed during our meeting in March. The comments in this letter pertain only to the Mill Creek watershed since that is our area of knowledge and interest.

The Mill Creek Conservancy is aware of your proposal and supports the primary objective of reducing erosion and rehabilitating riparian areas within the Mill Creek watershed. The Conservancy will look forward to providing input to the Lassen Forest Service on specific project designs for the Mill Creek watershed. The protection of the wilderness areas within the Mill Creek watershed are of special interest to our group.

The Lassen Forest Service is a signatory to the December 1994, Memorandum of Understanding for the Development of a Watershed Strategy for the Mill Creek Watershed. During the past five years the Lassen Forest Service has been a strong partner to that agreement. The Mill Creek Conservancy is ready to return the favor of collaborative efforts that your organization has generously provided us. Best of luck with the CALFED proposal.

Sincerely,

Kerry L. Burke



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DEER CREEK
WATERSHED CONSERVANCY

Fred Hamilton - President
Dianne Gaumer - Executive Director
Sue Knox - Community Watershed Coordinator
Joan Hemsted - Education/Outreach Director

April 14, 1999

Russ Volke
Lassen National Forest
P.O.Box 767
Chester, CA 96020

Re: CALFED 1999 Ecosystem Restoration Proposal

Dear Russ:

Dear Creek Watershed Conservancy is pleased to have the opportunity to support the Lassen National Forest's proposal for a CALFED ecosystem restoration grant.

Over the past five years we have both been committed to a working partnership and realize the importance and necessity of a cooperative approach to addressing ecosystem restoration and protection. As a signatory to our Memorandum of Understanding and an active member of our planning process, the Lassen National Forest has willingly demonstrated the value of this synergistic relationship and subsequent accomplishments are evident.

After reviewing your proposal, we find that your listed projects are consistent with the strategies outlined in our Deer Creek Watershed Management Plan and will greatly benefit our Conservancy's objectives.

We wholeheartedly endorse your proposal and look forward to a continuing relationship that provides the necessary oversight to preserve and protect the invaluable Deer Creek watershed.

Sincerely,

Dianne Gaumer
Executive Director

I-016831

The Battle Creek Watershed Conservancy
PO Box 606, Manton, CA 96059-0606

14 April 1999

Mr. Russ Volke
District Silviculturalist
Lassen National Forest
Post Office Box 767
Chester, CA 96020

Dear Mr. Volke:

The Board of Directors of the Battle Creek Watershed Conservancy has directed me to express the support of the Conservancy for your CALFED proposal, which we discussed during your visit to our Board meeting of March 8, 1999.

The Board feels that the projects proposed by Lassen National Forest, particularly the road survey and demonstration sedimentation stabilization work in the upper watershed, will complement survey work being proposed by the Conservancy in the middle reaches of the watershed, as well as ongoing survey and stabilization work being conducted internally by Sierra Pacific Industries in the middle-to-upper watershed. If these three elements fall into place we will have for the first time a full picture of the sedimentation problems in the entire watershed above the Coleman National Fish Hatchery, as well as some examples of remedial action to use in planning further stabilization programs.

We hope that LNF will provide the results of the road survey as input to our KRIS geographic database for Battle Creek. We believe that it is quite important that the condition of the entire watershed be available in this unified database, so that future decisions upon remedial action can be based upon a global view of the watershed conditions.

The Battle Creek Watershed Conservancy looks forward to continuing our working relationship with LNF.

Sincerely,

Robert Lee
Secretary, Battle Creek Watershed Conservancy

BUTTE CREEK
WATERSHED CONSERVANCY
P.O. Box 1611, Chico CA 95927-1611

April 14, 1999

CALFED Bay-Delta Program Office
1416 Ninth Street, Suite 1155
Sacramento, California 95814

Subject: Support for 1999 CALFED Bay-Delta ERPP Proposal

Dear Review Panel:

Following extensive collaboration and diligent review of the grant proposal to be submitted by USDA, Forest Service, Lassen National Forest, under the *1999 CALFED ERPP Proposal Solicitation Package*, the Butte Creek Watershed Conservancy would like to convey its enthusiastic support for the following proposal: *Lassen National Forest Watershed Stewardship within the Anadromous Watersheds of Antelope, Battle, Butte, Deer, and Mill Creeks.* However, the Conservancy withholds support for the activities described in the proposal with regard to the Colby Meadow area. Representatives of Lassen National Forest have been working closely with the Butte Creek Watershed Conservancy and myriad other stakeholder groups to develop the attached assessment and implementation projects for these important watersheds. This project will go a long way towards meeting the long-term objectives of the CALFED Bay-Delta Program to restore ecological health and improve water management for beneficial uses of the Bay-Delta system. If you have any questions regarding the Conservancy's support for this proposal, please feel free to call the office at 530-893-5399.

For the Conservancy,

James Charles (Chuck) Kutz
Chairman, Board of Directors, Butte Creek Watershed Conservancy

cc: USFS (Russ Volke)
Butte County Water Division (Vicki Newlin)
CSU, Chico BCWP (Dr. Donald Holtgrieve)

Chester Junior-Senior High School

P.O. Box 797 • Chester, CA 96020
(530) 258-2126 • FAX (530) 258-2306

Gary F. Hartman, Ed. D., Principal

Michael Jordan, M.Ed., Assistant Principal

April 12, 1999

Mr. Russ Volke
U.S. Forest Service
Lassen National Forest, Watershed Stewardship Program
P.O. Box 767
Chester, Ca. 96020

Dear Mr. Volke:

Thank you for the invitation to join with your agency in providing hands-on environmental educational opportunities in watershed management to the students of Chester Jr/Sr High School (CHS). Partnering with your agency in this grant opportunity would parallel the freshwater limnology program that is currently being planned and implemented at CHS.

It is my understanding that an existing "Creeksiders" program, developed by the Deer Creek Conservancy staff, has considerable educational curriculum developed in this regard. Our science instructors would certainly work in with this established program and make use of the developed curriculum. The watershed stewardship and management program that we would like to develop at CHS will include "on-the-ground" restoration work at local streams. Expanding on our current involvement with the Coordinated Resources Management (CRM) program, we would invite your resource professionals to provide mentoring and field based training opportunities to our students.

One of the overall goals of our CHS science program is to provide the necessary laboratory and field skills that will allow capable and interested students to seek future employment and training as watershed technicians. Some, we trust, would pursue university degrees in limnology or hydrology. These goals can be reached only when we partner with existing agencies that would allow us to bring to our students the following educational resources:

* Rigorous, relevant and hands-on water stewardship and restoration curriculum
* Field trip experiences that teach students the connection between curriculum and real life job opportunities
* An understanding of the coordinated efforts of local, regional, state and national water resources personnel.

It is expected that we could provide the above learning opportunities for grades 7-12 for $15,000 annually. Science teachers Mr. Dave Bradley and Mr. Buck Schaechterle, join with the CHS administration in affirming that a partnership with your agency will guarantee professional delivery of the agreed upon watershed management and restoration curriculum. Should this funding become available, we fully expect that our CHS graduates will have a clear understanding of the critical importance of sustainable watershed stewardship and restoration.

Yours for kids,

Gary F. Hartman, Ed.D.

cc: Dennis Williams, PUSD Superintendent

Appendix C

Notification Letters

United States Department of Agriculture | Forest Service | Lassen National Forest | Almanor Ranger District
P.O. Box 767
Chester, CA 96020
(530) 258-2141 Voice/TTY

April 14, 1999

Tehama County Board of Supervisors
633 Washington Street
Red Bluff, CA 96080

Dear Supervisors:

Earlier we informed you that we had been working with watershed Conservancies, large private landowners, the Chester schools, and other stakeholders to develop a watershed stewardship grant proposal for submittal to CALFED. The preliminary proposal included projects in Butte, Plumas, Shasta, and Tehama Counties ranging from extensive erosion contol and sediment reduction projects within anadromous watersheds, to the initiation of a watershed stewardship program at the Chester schools. We have now finalized the proposal with all of our stakeholders and will be submitting it to CALFED on April 16th. A copy of the proposal is attached. We thank you for your initial support of this proposal and hope that you will continue to support the collaborative watershed restoration efforts of all the dedicated stakeholders in your County.

Sincerely,

Philip A. Tuma

for MICHAEL R. WILLIAMS
District Ranger

United States Department of Agriculture | Forest Service | Lassen National Forest | Almanor Ranger District
P.O. Box 767
Chester, CA 96020
(530) 258-2141 Voice/TTY

April 14, 1999

Tehama County Planning Department
444 Oak Street
Red Bluff, CA 96080

Dear Friends:

Earlier we informed you that we had been working with watershed Conservancies, large private landowners, the Chester schools, and other stakeholders to develop a watershed stewardship grant proposal for submittal to CALFED. The preliminary proposal included projects in Butte, Plumas, Shasta, and Tehama Counties ranging from extensive erosion contol and sediment reduction projects within anadromous watersheds, to the initiation of a watershed stewardship program at the Chester schools. We have now finalized the proposal with all of our stakeholders and will be submitting it to CALFED on April 16th. A copy of the proposal is attached. We thank you for your initial support of this proposal and hope that you will continue to support the collaborative watershed restoration efforts of all the dedicated stakeholders in your County.

Sincerely,

Philip A. Terma

for MICHAEL R. WILLIAMS
District Ranger

United States Department of Agriculture | Forest Service | Lassen National Forest | Almanor Ranger District
P.O. Box 767
Chester, CA 96020
(530) 258-2141 Voice/TTY

April 14, 1999

Butte County Board of Supervisors
25 County Center Drive
Oroville, CA 95965

Dear Supervisors:

Earlier we informed you that we had been working with watershed Conservancies, large private landowners, the Chester schools, and other stakeholders to develop a watershed stewardship grant proposal for submittal to CALFED. The preliminary proposal included projects in Butte, Plumas, Shasta, and Tehama Counties ranging from extensive erosion contol and sediment reduction projects within anadromous watersheds, to the initiation of a watershed stewardship program at the Chester schools. We have now finalized the proposal with all of our stakeholders and will be submitting it to CALFED on April 16th. A copy of the proposal is attached. We thank you for your initial support of this proposal and hope that you will continue to support the collaborative watershed restoration efforts of all the dedicated stakeholders in your County.

Sincerely,

Philip A Terma
for MICHAEL R. WILLIAMS
District Ranger

United States Department of Agriculture | Forest Service | Lassen National Forest | Almanor Ranger District
P.O. Box 767
Chester, CA 96020
(530) 258-2141 Voice/TTY

April 14, 1999

Butte County Department of Development Services, Planning Division
7 County Center Drive
Oroville, CA 95965

Dear Friends:

Earlier we informed you that we had been working with watershed Conservancies, large private landowners, the Chester schools, and other stakeholders to develop a watershed stewardship grant proposal for submittal to CALFED. The preliminary proposal included projects in Butte, Plumas, Shasta, and Tehama Counties ranging from extensive erosion contol and sediment reduction projects within anadromous watersheds, to the initiation of a watershed stewardship program at the Chester schools. We have now finalized the proposal with all of our stakeholders and will be submitting it to CALFED on April 16th. A copy of the proposal is attached. We thank you for your initial support of this proposal and hope that you will continue to support the collaborative watershed restoration efforts of all the dedicated stakeholders in your County.

Sincerely,

Philip S. Terra
for MICHAEL R. WILLIAMS
District Ranger

United States Department of Agriculture | Forest Service | Lassen National Forest | Almanor Ranger District
P.O. Box 767
Chester, CA 96020
(530) 258-2141 Voice/TTY

April 14, 1999

Shasta County Board of Supervisors
1815 Yuba Rdg Suite 1
Redding, CA 96001

Dear Supervisors:

Earlier we informed you that we had been working with watershed Conservancies, large private landowners, the Chester schools, and other stakeholders to develop a watershed stewardship grant proposal for submittal to CALFED. The preliminary proposal included projects in Butte, Plumas, Shasta, and Tehama Counties ranging from extensive erosion contol and sediment reduction projects within anadromous watersheds, to the initiation of a watershed stewardship program at the Chester schools. We have now finalized the proposal with all of our stakeholders and will be submitting it to CALFED on April 16th. A copy of the proposal is attached. We thank you for your initial support of this proposal and hope that you will continue to support the collaborative watershed restoration efforts of all the dedicated stakeholders in your County.

Sincerely,

Philip A. Tuma

For MICHAEL R. WILLIAMS
District Ranger

United States Department of Agriculture
Forest Service
Lassen National Forest
Almanor Ranger District
P.O. Box 767
Chester, CA 96020
(530) 258-2141 Voice/TTY

April 14, 1999

Shasta County Resource Management Department, Planning Division
1855 Placer Rdg Suite 103
Redding, CA 96001

Dear Friends:

Earlier we informed you that we had been working with watershed Conservancies, large private landowners, the Chester schools, and other stakeholders to develop a watershed stewardship grant proposal for submittal to CALFED. The preliminary proposal included projects in Butte, Plumas, Shasta, and Tehama Counties ranging from extensive erosion contol and sediment reduction projects within anadromous watersheds, to the initiation of a watershed stewardship program at the Chester schools. We have now finalized the proposal with all of our stakeholders and will be submitting it to CALFED on April 16th. A copy of the proposal is attached. We thank you for your initial support of this proposal and hope that you will continue to support the collaborative watershed restoration efforts of all the dedicated stakeholders in your County.

Sincerely,

Philip A. Turner

for MICHAEL R. WILLIAMS
District Ranger

United States Department of Agriculture | Forest Service | Lassen National Forest | Almanor Ranger District
P.O. Box 767
Chester, CA 96020
(530) 258-2141 Voice/TTY

April 14, 1999

Plumas County Board of Supervisors
520 Main Street
Quincy, CA 95971

Dear Supervisors:

Earlier we informed you that we had been working with watershed Conservancies, large private landowners, the Chester schools, and other stakeholders to develop a watershed stewardship grant proposal for submittal to CALFED. The preliminary proposal included projects in Butte, Plumas, Shasta, and Tehama Counties ranging from extensive erosion contol and sediment reduction projects within anadromous watersheds, to the initiation of a watershed stewardship program at the Chester schools. We have now finalized the proposal with all of our stakeholders and will be submitting it to CALFED on April 16th. A copy of the proposal is attached. We thank you for your initial support of this proposal and hope that you will continue to support the collaborative watershed restoration efforts of all the dedicated stakeholders in your County.

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Philip S. Terra

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District Ranger